

REMARKS/ARGUMENTS

In the Office Action mailed October 19, 2005, claims 1-8 were rejected. Applicant has thoroughly reviewed the outstanding Office Action including the Examiner's remarks and the references cited therein. The following remarks are believed to be fully responsive to the Office Action. All the pending claims at issue are believed to be patentable over the cited references. Therefore, reconsideration of the application is respectfully requested.

Claims 1 and 3-6 are amended to correct informalities and to more clearly state the claimed invention, incorporating matter found in the specification. No new matter is added. Claims 9-21 are withdrawn. Claims 22-29 are added. As such, claims 1-8 and 22-29 remain pending.

SPECIFICATION

Paragraph [0034] in the specification is amended to correct a figure reference and to move a misplaced list of materials to its proper location. The revisions are merely typographical in nature, and no new material is introduced thereby.

CLAIM REJECTIONS – 35 U.S.C. § 103(a)

The Examiner rejected claims 1-8 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 3,461,413 to Randolph, et al. (hereinafter "Randolph") in view of U.S. Patent No. 2,007,161 to Jones (hereinafter "Jones").

The Examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. MPEP §2142. To establish a *prima facie* case of obviousness, three criteria must be met. First, there must be some suggestion or motivation, to modify the references or to combine reference teachings. Second, there must be reasonable expectation of success. Finally, the prior art must teach all the claim limitations. MPEP §2142.

The references do not teach or suggest the combination recited by claim 1. For example, Applicant's independent claim 1 recites, in relevant part: "a core for a superconducting transformer, a conductive shield, wherein the shield substantially surrounds at least a portion of the core without establishment of electrical contact therewith, a cast, wherein the cast is a thermally conductive material that occupies substantially all of the volume between at least a portion of the core and the shield, and a thermally conductive, liquid-carrying tube, wherein the tube is so positioned on the shield as to provide heat transfer capability between the shield and the liquid."

The Office Action asserts that Randolph in view of Jones discloses this apparatus. Applicant respectfully traverses this interpretation of Randolph in view of Jones.

The Office Action states, "Randolph et al. discloses inductive component comprising: a molded bobbin [10] having a hollow portion; at least one core inserted into the hollow portion of the bobbin; and a copper shielding layer [29] formed on an outer surface of the winding portion [11] of the bobbin."

Applicant notes that the "winding core" of Randolph is not a transformer core but is instead a portion of the bobbin (column 2, lines 17-19). The bobbin [10] is molded from an insulating material (col. 2, ll. 8-9, 55-62; col. 1, ll. 19-21). Randolph discloses no core in the sense of the instant invention. Indeed, Randolph nowhere teaches or suggests an express function served by the hollow center within the "winding core" portion [11] of the bobbin.

The Office Action further states, "Randolph et al. discloses the instant claimed invention except for the specific of tubing. Jones et al. discloses an induction device [figures 6-7] comprising: a spool-like structure upon the winding can be wound; a core structure; a shielding structure [17]; and a cooling tube/channel/conduit [20, 25, 38, 43] arranged outside of the core structure; and cooling water flows into the tube/channel/conduit. It would have been obvious to one having ordinary skilled in the art at the time the invention was made to use the cooling

tube/channel/conduit design of Jones et al. into Randolph et al. for the purpose of providing cooling for the transformer.”

Applicant notes that Jones describes apparatus for inducing currents between internal and external components of an induction welder for seamed pipe during welding thereof. Applicant further notes that the cooling water channels and hollow studs of Jones are provided in order to remove heat coupled to structural members in the induction welder. Jones also forces cooling water through the copper tubing that forms the inductor coil.

Nowhere does Jones disclose a spool-like structure. Indeed, the water-filled, insulated tube (col. 3, ll. 70-72) comprising the inductor coil of Jones is wound directly on the laminated core (col. 3, l. 72-col. 4, l. 9). Nowhere does Jones disclose a shield surrounding the core. The disk [17] identified as a shield in the Office Action is a plate positioned transverse to and located external to the inductor coil. Neither the channels and hollow studs [20, 25, 38, 43 and the like] nor the integral cooling of the hollow inductor coil of Jones teaches or suggests placement of a liquid-carrying tube in a position to transfer heat from a shield surrounding a core to a liquid carried within the tube.

Thus, nowhere does Randolph teach or suggest the combination of claim 1. Randolph therefore cannot anticipate claim 1 or any of its dependents, and claim 1 and its dependent claims 2-8 are patentable over Randolph. Moreover, Jones does not cure these shortcomings, and is cited only to teach “the specific of tubing.” Thus, the asserted combination of references does not teach each and every element of the claimed invention. Since the Examiner has not established a prima facie case of obviousness, a § 103 rejection is improper.

In light of the foregoing arguments, withdrawal of the rejection of claims 1-8 under 35 U.S.C. § 103(a) as being unpatentable over Randolph in view of Jones is respectfully requested.

NEW CLAIMS

Regarding claims 22-28, all of the claims depend ultimately from independent claim 1, and are patentable at least for that reason. Further, all of the limitations presented in the new claims are found in the specification, at least at the locations noted herein:

Claim 22 is described at least in paragraphs [0023] and [0024]. Applicant respectfully submits that the use of the term “hollow cylinder” in claim 22 is not indefinite in view of the use of the description “constructed from a ... copper sheet formed into a tube” in paragraph [0024], and further serves to distinguish between the cooling tubing and the shield structure.

Claim 23 is described at least in paragraphs [0021] and [0026].

Claim 24 is described at least in paragraphs [0021] and [0033].

Claim 25 is described at least in paragraph [0033].

Claim 26 is described at least in paragraphs [0021] and [0033].

Claim 27 is described at least in paragraphs [0036]. Applicant respectfully submits that the use of the term “embedded in the cast” in claim 27 is not indefinite in view of the use of the description “inside of the cooling shield 28, [whereby] the cooling tubing 34 will be in contact with the epoxy and will not have to be bonded to the shield 28.” in paragraph [0036], and further serves to distinguish between the epoxy of the cast and the epoxy used to bond the tube to the shield in other embodiments.

Claim 28 is described at least in paragraphs [0034] and [0037].

Claim 29 is described at least in paragraph [0040].

CONCLUSION

In view of the foregoing remarks, Applicants respectfully request all the objections and rejections to the specification and claims be removed. If, for any reason, the Examiner disagrees, please call the undersigned attorney at 202-861-1703 in an effort to resolve any matter still outstanding before issuing another action. The undersigned attorney is confident that any issue which might remain can readily be worked out by telephone.

In the event this paper is not timely filed, Applicant petitions for an appropriate extension of time. Please charge any fee deficiencies or credit any overpayments to Deposit Account No. 50-2036 with reference to Attorney Docket No. 87304.1860.

Respectfully submitted,

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